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Patentanmeldung Nr. Patent application No. Demande de brevet n°

00203923.8

**CERTIFIED COPY OF
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Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Method to compose a list of TV or radio programs from a given transmission schedule

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Method to compose a list of TV or radio programs from a given transmission schedule

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The invention relates to a method to compose a list of TV or radio programs from a given transmission schedule, and a controller for an audio and/or video recording and/or displaying device adapted to execute the method.

With the increasing number of available channels and programs on radio and TV, sophisticated systems have been proposed to allow a consumer to more easily select the programs he wants to see, listen to or record. One such system is disclosed in WO 96/31980. This system comprises a Set-Top-Box for a TV, the box receiving information about the schedule of programs to be broadcast during the next time, e.g. the next week. The system comprises a graphical display, which may be the screen of the TV the system is used with, to show the schedule of programs as a table that is ordered according to time and channel. Thus, programs of each channel may be arranged in vertical columns, the rows of the table corresponding to the times the programs are transmitted. The user may move a cursor or something like that through the table, scroll the table, if necessary, and select a program from the table. The selected program is highlighted to mark it, and it is displayed on the TV screen or recorded on a Video Cassette Recorder (VCR) at the time of its transmission.

Though the system described above presents the schedule of programs in a well ordered manner, there are several drawbacks. First, the display of the table consumes a lot of space due to the large number of available programs that must be depicted. For the user to find out which programs have been tagged for either viewing or recording, (s)he has to do extensive scrolling through all channels. So the user suffers from almost a complete lack of overview when it comes to finding out which programs will be viewed / recorded when. In case of two programs tagged for viewing at (partly) overlapping time slots the user is left to find out while watching the one that came first in time, and in case of recording, it is either left to the attendance of the user to exclude recording overlaps, or (s)he gets an error message which prompts to eliminate either the one program or the other.

Similar systems as in WO 96/31980 are disclosed in WO 92/04801 and EP 0 682 452 A2, having the same limitations and drawbacks.

Therefore, it is an object of the present invention to provide a method and a device that aid a user to compose a list of TV or radio programs from a given transmission

schedule, the list being suited as a guide for recording or viewing the programs. Moreover, the system should provide the user with visual help to prioritise the viewing / recording scheme for selected programs.

5 These objects are achieved by a method according to claim 1 and a controller according to claim 7.

With the method according to the invention, a list of TV or radio programs can be composed from a given schedule of transmission of the programs. The method comprises the steps of:

- (a) selecting a program from the schedule and adding it to the list,
- 10 (b) graphically representing the programs of the list as items on a timeline, the length and position of each item corresponding to the duration and time of transmission of the corresponding program; the items may be bars, scaled representative snapshots or icons ("thumbnails"), text bars etc.;
- (c) selecting a program from the list and removing it from the list, if necessary,
- 15 (d) repeating steps (a), (b), and (c) until the list is complete.

The schedule of transmission of programs may be represented in any way that is convenient for the user and technically feasible. Therefore, the schedule may simply consist of a text list that may readily be represented on a limited screen. If there is enough space on the screen, the schedule may be presented graphically, too. When the user has
20 selected a program from the schedule, this program is graphically represented as an item, e.g. a bar, on a timeline together with the other programs that have already been added to the list. In this representation, the length and position of each item/bar corresponds to the duration and time of transmission of the corresponding program. The user therefore immediately and intuitively sees if two or more programs of the list overlap in time. As only one program can
25 be viewed or recorded at a time, the user therefore has to modify the composition of the list to resolve these conflicts. He may for example remove one or more programs from the list until there is no more overlap. This management of the list of programs is largely supported by the graphical representation of the list on a timeline, which helps the user to quickly find a choice that best suits his preferences with minimal loss of valuable programs.

30 According to a preferred embodiment of the invention, some or all of the programs of the list are assigned a priority, and programs or parts of programs overlapping in time are processed according to their priority. The assignment of a priority provides the possibility to let partially overlapping programs remain in the list and, instead of removing one of them, to prescribe an order the programs are processed in. E.g., when a program of

higher relevance for the user and a program of lower relevance for the user partially overlap, the program of higher relevance may be recorded completely, and of the program of lower relevance only those parts are recorded that do not overlap with the other program.

- Therefore, an intrinsic usability quality of the invention is the possibility to
- 5 assign a priority to some or all of the programs of the list: programs or parts of programs overlapping in time are processed according to their priority. In a visual embodiment of the invention the process of prioritising may be as simple as "dragging" the preferred program to the front, visually indicating the overruling of the program in the back.

- According to another embodiment of the invention, some or all of the
- 10 programs of the list are assigned starting times and/or stopping times, and they are processed according to said times. This feature allows a user to record or view only those parts of a program he is interested in. Moreover, the user gets another tool to solve the problem of overlapping transmission times.

- A preferred use of the list that is composed by the user consists of using it to
- 15 control the recording of programs on a recording device and/or to control the display of programs on a audio and/or video displaying device.

The invention comprises a controller for an audio and/or video recording and/or displaying device, too. The controller comprises

- (A) a memory for storage of the schedule of available TV or radio programs,
- 20 (B) an input device allowing a user to enter selections,
- (C) a display unit to graphically represent programs of a list of programs,
- the controller being adapted to
- (D) execute a method as described above in order to compose a list of programs,
- (E) control the audio and/or video recording and/or displaying device to process
- 25 the programs according to said list.

The controller is able to implement the method described above and to process the list that is composed by this method. Consequently, the resulting advantages of the method can be achieved. Moreover, the controller can be modified in such ways that the preferred embodiments of the method described above are realised.

- 30 The invention will now be described by way of example with reference to the accompanying drawings.

Fig. 1 schematically shows the composition of a list of programs from a schedule;

Fig. 2 shows different cases to prioritise three partially overlapping programs.

Figure 1 schematically depicts the composition of a list 20 of programs from a schedule 10 that contains all programs 101, 102, 103, 104, A program 102 that is selected from the schedule 10 by the user is "dragged" to the timeline 30, where the programs 110, 111, 102 are graphically represented as bars. The extension and position of the bars corresponds exactly to the duration and transmission time of the programs. Therefore, the user immediately and intuitively sees the ordering of the selected programs in time.

Particularly, the user readily notices if and where problems occur due to overlapping transmission times. There are at least three different ways to resolve such an overlap:

10 (i) Removing programs from the list until there is no more overlap. The graphical representation is of use here, too, because the user can identify programs the removal of which resolves several collisions at a time. E.g. in Fig. 1 program 102 overlaps with both program 110 and program 111. Therefore, removal of the single program 102 is generally preferred over removal of two programs 110 and 111.

15 (ii) Assigning priorities to the programs. In case of an overlap, programs with higher priorities are preferred, i.e. viewed or recorded first. Programs of lower priority are processed only if the processing of programs with higher priority is finished. In the figure, program 102 is assigned priority "B", program 110 priority "C", and program 111 highest priority "A". Therefore, the recording of program 110 is interrupted at time t_1 , program 102 is recorded from its start at t_1 until t_2 , and program 111 is recorded from its start at t_2 until its end.

(iii) Assigning individual starting times and stopping times to the programs. In this case, the user must determine explicitly when to start and stop the processing of a program, thus avoiding overlap "manually".

25 Fig. 2 depicts a more intuitive representation of the selected programs 102, 110, 111, and their priority. In this case, the bars representing the programs are at least partially arranged in the same vertical height. Priority of a first program over a second program is represented by arranging the first program in the foreground and the second program in the background. Thus, the three selected programs 102, 110, 111 may have the four different relationships that are shown in Fig. 2. The user may change the relationships simply by clicking, pointing, indicating by means of mentioning the event titles, e.g. "Program 102 over Program 110" etc.

In summary, the invention concerns the visual ordering of broadcast events that are scheduled for either viewing or recording in an intuitive way: all events that are

selected for recording from a program guide are automatically "dragged" into a screen with a timeline to the exact place on that line when they will be broadcast.

Unlike in text lists - where the only way to give feedback on the fact that one wants to record more programs at a time than tuners/recorders available, via an error message

- 5 - it is immediately visible when a capacity problem occurs. By visually ordering the programs to be recorded, one can easily prioritise, and in this way often resolve the problem. One can even choose to record parts of programs by allowing programs to partly overlap in the visual map. The preparation of a viewing list (a visual tag-list of events one wants to watch in the near future) works exactly the same way.

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List of references:

- 10 schedule of programs
20 list of programs
30 timeline
101, 102, 103, 104, programs
110, 111

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CLAIMS:

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1. A method to compose a list (20) of TV or radio programs from a given transmission schedule (10) of the programs, comprising the steps of:

- (a) selecting a program (102) from said schedule and adding it to the list,
- (b) graphically representing the programs (102, 110, 111) of the list as bars over a
5 timeline (30), the length and position of each bar corresponding to the duration and time of transmission of the corresponding program,
- (c) selecting a program and removing it from the list, if necessary,
- (d) repeating steps (a), (b), and (c) until the list is complete.

10 2. The method according to claim 1, characterised in that some or all of the programs (102, 110, 111) of the list (20) are assigned a priority, and programs or parts of programs overlapping in time are processed according to their priority.

15 3. The method according to claim 2, characterised in that the values of the priorities are automatically initialised according to the sequence in which the programs are added to the list.

20 4. The method according to one or more of claims 2 to 3, characterised in that overlapping programs of the list are visually ordered as being in the foreground and background, respectively, and that the program in the foreground is assigned the higher priority..

25 5. The method according to one or more of the preceding claims, characterised in that the list (20) is used to control the recording of programs on a recording device.

6. The method according to one or more of the preceding claims, characterised in that the list (20) is used to control the display of programs on an audio and/or video displaying device.

7. A controller for an audio and/or video recording and/or displaying device, comprising

(A) a memory for storage of the schedule (10) of available TV or radio programs,
(B) an input device allowing a user to enter selections,

5 (C) a display unit to graphically represent programs of a list (20) of programs,
the controller being adapted to

(D) execute a method according to at least one of the claims 1 to 6 in order to
compose a list of programs,

(E) control the audio and/or video recording and/or displaying device to process
10 the programs according to said list.

ABSTRACT:

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The invention concerns the visual ordering of broadcast events (101, 102, ...) or programs that are scheduled for recording: all events (110, 102, 111) that are selected for recording from a program guide (10) form a list (20). They are displayed on a screen with a timeline (30) to the exact place on that line when they will be broadcast. This allows the user

5 to readily overview the sequence of the programs (110, 102, 111) in the list. Overlap of programs may be resolved by the assignment of priorities (A, B, C) to the programs, recording programs with higher priorities first.

Fig. 1

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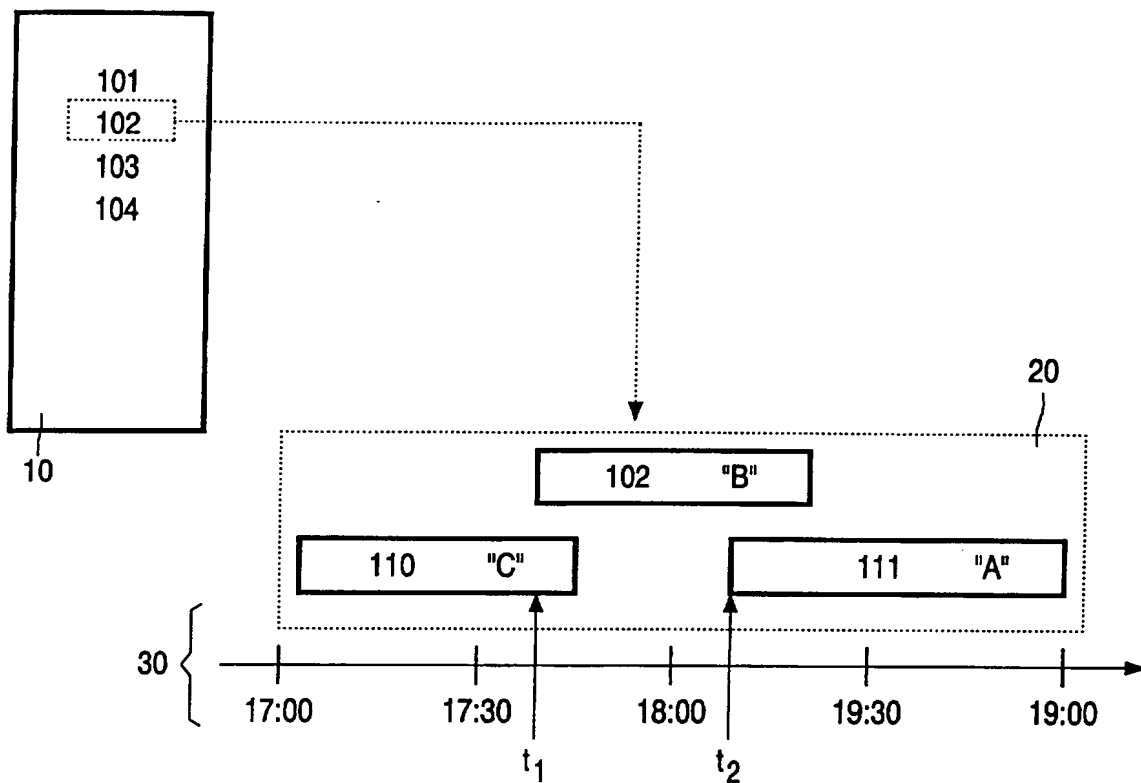


FIG. 1

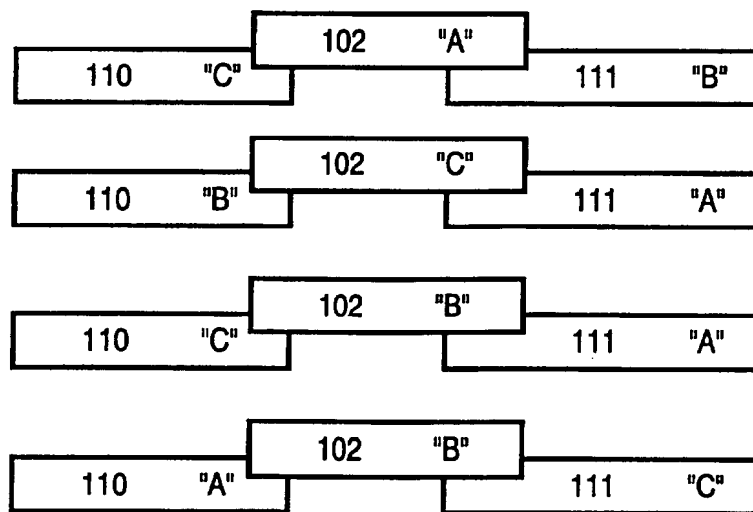


FIG. 2

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